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GENERAL MEETINGS

A quarterly meeting is scheduled in order to plan club activities and the magazine.
See BOIC Programme

CONTACT ADDRESS AND MEMBERSHIP DETAILS

PO Box 2113, Runcorn, Queensland 4113 – Email info@boic.org.au
Membership fees are $30 for individuals, schools, and organizations.

AIMS OF THE ORGANIZATION

- To establish a network of people growing butterfly host plants;
- To hold information meetings about invertebrates;
- To organize excursions around the theme of invertebrates e.g. butterflies, native bees, ants, dragonflies, beetles, freshwater habitats, and others;
- To promote the conservation of the invertebrate habitat;
- To promote the keeping of invertebrates as alternative pets;
- To promote research into invertebrates;
- To encourage the construction of invertebrate friendly habitats in urban areas

MAGAZINE DEADLINES

If you wish to submit an item for publication the following deadlines apply:
March issue – February 1st June issue – May 1st
September issue – August 1st December issue – November 1st
All articles should be submitted directly to the Editor daphne.bowden1@bigpond.com

COVER IMAGE

Acraea terpsicore under the magnifying glass with the globe showing 1695, the location of the first record of *A. terpsicore* and 2020 the most recent records. In the fore ground is a copy of Wilfrid Blunt's The Compleat Naturalist, A Life of Linnaeus. Carl Linnaeus being the person who named *A. terpsicore* – Compiled by Peter Hendry.

FROM THE PRESIDENT

You will be aware that this is the 100th edition of what began as the club's quarterly newsletter that later became our magazine. The cumulative work of hundreds of people stands as a wonderful record. It is impossible here to acknowledge all of them so I will mention only two of them as examples of what has been contributed.

The first is Daphne who has been central to the whole process for all of these years. You will read a tribute in the pages of this edition. Thank you again Daphne.

The second is Wesley Jenkinson whose 51st consecutive life cycle report appears in this edition. Wes's dedicated efforts in observing, photographing, note taking and reporting are exceptional and to just say "Congratulations. Thank you, Wes" feels, quite inadequate.

Thanks again to our contributors to this edition. Many of us will read with interest Peter and John's historical record of that recent immigrant butterfly the Tawny Coster. Quite a saga which probably parallels the sagas of many of the huge range of invertebrates.

You will now also be aware of mooted changes in the club management this year. I am sure it will continue in good hands.

Best wishes *Ross*

IN THIS ISSUE

Making History, *Acraea terpsicore* (Lepidoptera : Nymphalidae) - *John Moss & Peter Hendry*

The butterfly we now know as the Tawny Coster (*Acraea terpsicore* Linnaeus, 1758) can be traced back to 1695. Its name has a complex and confusing history which even today is not fully resolved, while the butterfly itself is still making history.

In the Beginning:

James Petiver (1663-1718), was a London apothecary (precursor to the modern-day pharmaceutical chemist). According to Salmon (2000) he *may be considered the father of British Butterflies*. He conversed with the English naturalists of the time, including identities such as John Ray (botanist and zoologist) and Sir Hans Sloane whose natural history collection, which contained some of Petiver's material, became the founding collection of the British Museum. Petiver was a member of the Temple Coffee House Botanic Club, said by Allen (1976) (in Salmon, 2000) *to have been the earliest natural history society in Britain and probably the world*. Petiver had connections in British outposts of the time and encouraged travellers to collect for him.

A Mr Edward Buckley who collected around Fort St George, Madras (now Chennai) on the Coromandel Coast of the Bay of Bengal, S. E. India, is most likely the person who collected a butterfly Petiver (1695) called Papilio Madraspt., a shortening of Madraspatnam. Madraspatnam [also spelt as Madraspatam, Madraspatan, Madraspattan and from Tamil, Mādarasanpattanam] was the name of a fishing village, where in c. 1640 the British East India Company built Fort St. George, which then became known simply as Madras (Dalrymple, 2019) present day Chennai. In his description Petiver notes that *they are observed about Fort St. George in November.* Petiver (1702) in a description of his illustration (plate 40 figure 4) using the name Papilio MADRASPATAN, notes it was from Fort St. George and uses the common name of "Madras Fritillary". Many of Petiver's common names for British butterflies stand today, namely admirals, arguses, hairstreaks, tortoiseshells and the Brimstone *(Gonepteryx rhamni)*, perhaps the original butterfly, (Salmon, 2000).

Carl Linnaeus (1707-1778) was a Swedish botanist, zoologist, and physician who formalised binomial nomenclature, the modern system of naming organisms. The 10th edition of his *Systema Naturae*, 1758 is regarded as the starting point for zoological nomenclature. However, Carl Alexander Clerck (1709 – 1765), a Swedish entomologist and arachnologist published *Svenska Spindlar* in 1757, a book on Swedish spiders. The scientific names proposed by Clerck were based on Linnaeus's binomial system and have been recognized in the International Code of Zoological Nomenclature. The first animal named under the modern system was the orb-weaving spider, *Araneus angulatus*.

Within the 10th edition of his *Systema Naturae*, 1758, Linnaeus named *Papilio terpsicore*, this proved to be the start of a long journey for both the butterfly and its name. Included in Linnaeus's description, which noted "Asia" as its habitat, was a reference, *Pet. Gaz. t.* 40 *f.* 4, referring to Petiver's Gazophylacium, (table 40 figure 4). [Fig. 1, reproduced here from a reissued collection of Petiver's work compiled and published by John Millan, 1767]

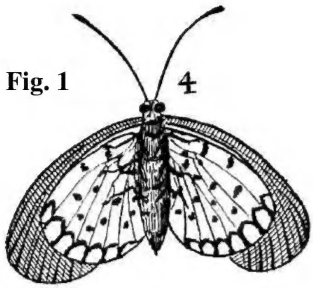


Fig. 1

Linnaeus's spelling of *terpsicore* could be considered a misspelling for either one of two alternative considerations. Firstly, in Greek mythology, Terpsichore with an h, was the name of the Muse of Dance one of the nine muses considered to be goddesses who ruled over the arts and sciences, and as Greek names were often favoured by Linnaeus, it could be considered a misspelling, [although using this form of the name could have been a deliberate intention on his part]. Thalia, the Muse of Comedy, is a name also used by Linnaeus in *Systema Naturae*, 1758. The alternative reason that *terpsicore* could be considered a misspelling, is the fact that in an expanded description of the species written by Linnaeus himself in *Museum Ludovicæ Ulricæ reginæ svecorum, gothorum, vandalorumque* (1764), he actually spelt it as" Terpsichore", i.e. with an "h"! However, in the twelfth edition of *Systema Naturae* (1767) he reverted to *terpsicore*, with a description that was an exact copy of his 1758 one, except for the addition of a reference to his 1764 work. All this aside, under current convention, the rules of the International Code of Zoological Nomenclature, dictate that the first published name must prevail. Thus "*terpsicore*" it remains!

Johan Christian Fabricius (1745–1808), was a Danish zoologist and a student of Linnaeus. It was Fabricius, who in 1807, the year before his death, raised the genus *Acraea*. Today it belongs in the Nymphalidae family, subfamily Heliconiinae, tribe Acraeini. At that time Fabricius placed within the genus three species, namely: *Papilio horta* (Linnaeus, 1764), the type species by subsequent designation (Scudder, 1875), *Papilio terpsicore* (Linnaeus, 1758), using the spelling Terpsichore and *Papilio brassolis* (Fabricius, 1777) which was a replacement name for Cramer's 1775 *Papilio Bellona.* [Note, *brassolis* is now in the genus *Archonias* and is actually a member of the Pieridae family.]

***Papilio violae*:** Not recognising the pre-existing terpsicore for a specimen sent to him in 1775, Fabricius described it as new, naming it *Papilio violae* [now considered to be a synonym of *A. terpsicore*] giving its locality as *habitat in violis, boragine Indiae orientalis* (in India amongst violets and the herb Borage). In trying to pin-point the exact location, it is noted that Fabricius refers to the collector as "Koenig", an author abbreviation for Johann Gerhard König, a German botanist, who was also a student of Linnaeus. König, from 1773 to 1785 worked in India as a naturalist to the Nawab of

Arcot, who during that period was Muhammad Ali Khan Wallajah. Madras (Chennai) was situated within the district of Arcot, also known as Carnatic. It is known that König embarked on trips to the mountains north of Madras (as well as to Ceylon) so it is quite possible for Fabricius's *violae* to have been collected in a similar location to Petiver's Madras Fritillary. Thus the name *violae* became widely associated with the Asian *Acraea* known as the "Tawny Coster". [As an aside, Linnaeus named the Curry Leaf Tree (*Murraya koenigii*) in König's honour].

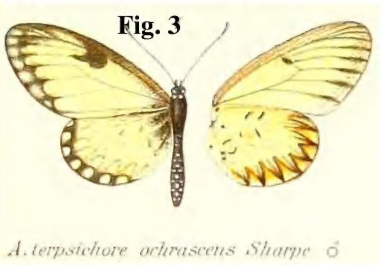
Almost Lost in Time:

The spelling terpsichore was used by many of the early authors. In fact, a search of the early works on Lepidoptera will find a far greater number of references under terpsichore than *terpsicore*. Meanwhile the name *terpsicore* became more and more associated with African acraeas either as forms or subspecies. Thus Rothschild and Jorden (1905) in a continuation of their paper, Lepidoptera collected by Oscar Neumann in North-East Africa, incorrectly noted Linnaeus's location of *terpsicore* as in error *(" Asia " err. loci)*.

Harry Eltringham (1873-1941) was an English histologist and entomologist who specialised in Lepidoptera. Eltringham (1912) in his Monograph of the African Species of the Genus *Acraea*, using the spelling terpsichore describes it as *an extraordinarily variable species especially in the ♀ sex* and gives an African distribution as *from about 10.3° n to 30° s and in Madagascar and the islands*. He describes and lists many forms and several subspecies. Some examples include:

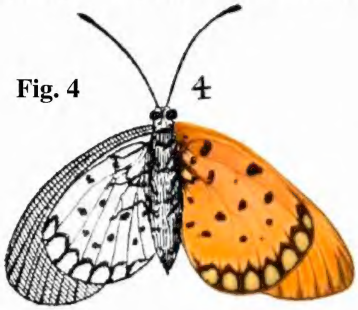
Fig. 2

Fig. 3



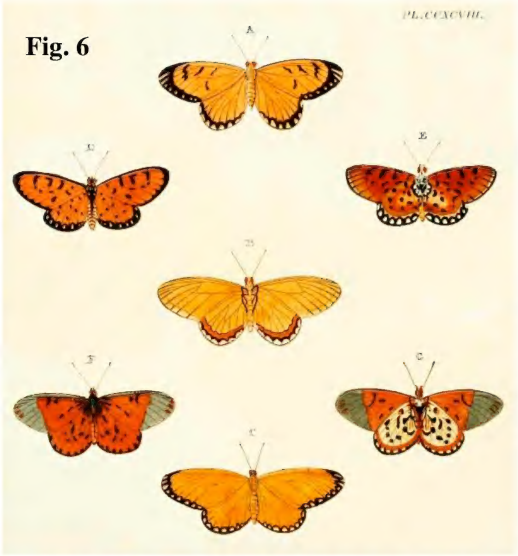
A. terpsichore f. *rangatana* which he illustrated (Fig. 2). This is now a full species, namely *Telchinia rangatana* (Eltringham, 1912). Hewitson's *A. ventura* he redescribes as *A. terpsichore* f. *ventura* (which is now *Telchinia ventura* (Hewitson, 1877) and Sharpe's *A. ochrascens* as *A. terpsichore ochrascens* (illustrated in Jordan & Eltringham, 1916) (Fig. 3) but which is now *Telchinia ventura ochrascens* (Sharpe, 1902). None of Eltringham's "terpsichore" forms and subspecies hold true today as the real *terpsicore* is not present in Africa!

Charles Le Doux, was a German entomologist, who published extensively on the Acraeini. In 1928, Le Doux, with the help of Dr. N. D. Riley from the British Museum compared Fabricius/Konig's *violae* with Linnaeus/Petiver's Fort St. George specimen point by point, using Petiver's illustration and declared: *there is now no doubt that Linnaeus Ac. terpsichore = Ac. violae Fab. 1775.* (Fig. 4 is the author's attempt to overlay an *A. terpsicore* image with Petiver's illustration.)



In confirmation, Ackery, Smith & Vane-Wright (1995) stated that *Papilio terpsicore is in fact the oldest available name for the Oriental species widely known as Acraea violae (Fabricius).* They also noted that *terpsicore was incorrectly used for the African species now known as Acraea eponina (Cramer)* and quoted Henning, G. A. (1986) who stated that *A. terpsicore and* [the African] *A. neobule are specifically distinct.*

Some examples of the misidentification of *terpsicore* are in the illustrations from early works. Sulzer (1776) illustrated (Fig. 5) *Acraea cepheus* (Linnaeus, 1758) with what is clearly *A. terpsicore*. Cramer (1782) illustrated (Fig. 6) three species on his plate 298. His figures A, B and C (noted as *terpsicore*) are a misidentification of the Asian Yellow Coster, *Telchinia issoria* Hübner, 1819. His figures D and E which actually represent *terpsicore*, were noted as *cephea*. The other figures, F & G, are noted as *horta* (Linnaeus, 1774) the type species of *Acraea*, to which it does have some resemblance.



For a better understanding of the problems surrounding *terpsicore*, the authors recommend Pierre & Bernaud, 1997. Although written in French it translates fairly well

using the web site Google Translate. This should be followed by Honey & Scoble, 2000, who, in what must have been a massive undertaking, researched 305 species named by Linnaeus under the genus *Papilio*. Under *terpsicore* they qualified some of Pierre & Bernaud's 1997 statements regarding the examination of types and concluded, *in the absence of authenticated syntypic material, the identity of terpsicore remains, therefore, in doubt, and we view the synonymy of terpsicore and violae as likely but unestablished*.

Sanderson, Braby, Thistleton & Neal, 2012 were the first to report on the occurrence *A. terpsicore* in Australia and used *terpsicore* over *violae*, which is followed herein. However, it must be stated that while the current names of other species listed above are from the online checklist provided by Nymphalidae.net, edited by Niklas Wahlberg (accessed 15/12/2020), this checklist favours *violae* with no reference to *terpsicore* and the online barcode site IBOLD also use *violae.*

Prelude to Invasion of Australia:

Many papers have been written about the expansion of the Tawny Coster butterfly (*Acraea terpsicore*) from its original home in India and Sri Lanka. It has made a rapid progression across South and South-east Asia within the last three decades, and more recently across the Australian Continent since it first appeared on the Cox's Peninsula in the Top End of the Northern Territory in April 2012.

These sightings (and captures), initially by Chris Sanderson and Michael Braby, were first reported to the scientific community by Sanderson *et al* in the August 2012 issue of *Myrmecia* (News Bulletin of the Australian Entomological Society) and subsequently in two local publications: namely a short article by Michael Braby in the February 2013 number of *Nature Territory,* newsletter of the Northern Territory Field Naturalists' Club, followed by a similar one in the July 2014 newsletter of the Top End Native Plants Society, following Michael's June talk to the group. This talk was partly based on a presentation Michael had made in the previous year to an international symposium (on Asian butterfly biodiversity) in Taiwan which *inter alia* included discussion on actual and perceived threats to horticultural products, as some concerns had been raised by the industry of possible impacts from this immigrant butterfly. While these for the most part have been allayed, below we will discuss the issue of known and potential host plants for this species in Australia.

Meanwhile, one year later on the 27th of April 2013 Geordie Paton, a BOIC member from Broome WA, discovered the butterfly near Kununurra in the East Kimberley. This was reported in the September 2013 issue (No. 70) of *Metamorphosis Australia* by Ross Kendall, who also commented on the local literature and summarised the Tawny Coster situation up until that date. Just as interesting is his mention of Trevor Lambkin's October 2010 trip to the Lesser Sunda Indonesian island of Flores where he recorded the butterfly for the first time; it not having been present on previous

visits. Thus it is interesting to speculate whether the first Australian specimens came from Flores or Timor, the latter island being the currently accepted origin.

Peter Wilson of Bundaberg was the first to record the butterfly from Queensland with many sightings in the western Gulf of Carpentaria region including the township of Kowanyama and in the lower Mitchell River Catchment in August 2016 (as appears in the September 2016 News Bulletin of the Entomological Society of Queensland). Following those reports, the butterfly next made an appearance in February 2017, much further to the east at Talaroo Station in the Einasleigh Uplands Bioregion between Mt Surprise and Georgetown. This was reported in volume 47 of the *North Queensland Naturalist*, with the delightful title "A colourful new Australian reaches Talaroo: The Tawny Coster butterfly *Acraea terpsicore*". The authors report the larvae as feeding on the "Lilac Spade-flower" *Hybanthus enneaspermus* (Franklin *et al*, 2017).

Queensland East Coast Arrival:

The first news of the butterfly reaching the Queensland east coast (at Cairns on the 27th March 2017) was reported by the late BOIC member Bob Miller in a short article in *Metamorphosis Australia* entitled "They have finally arrived!" There was no mention of the butterfly's name in the title of the article but we all knew exactly which creature Bob was referring to! Another paper appeared in volume 47 of the North Queensland Naturalist (Field, 2017) with further information on the butterfly's appearance in the Cairns area. The following morning (28th March) the author observed a large migration of the butterfly in a south-easterly direction over Trinity Bay "carried by the strong winds of Tropical Cyclone Debbie". Comment was also made on the observed larval food plants, being *Hybanthus enneaspermus* (now *Afrohybanthus enneaspermus*), *Adenia heterophylla* and the exotic *Passiflora foetida.* It was noticed that the butterfly appeared to have a preference for ovipositing on the *Adenia* which he pointed out is already the host plant for three other native butterflies, thus eliciting some concern about possible unhealthy host plant competition.

In quick succession the butterfly made appearances further south along the coast at Townsville from 11th to 16th May (Dunn and Woodger, 2017) and at Bowen on 5th June (Dunn and Petrie, 2017) with the observation that large areas of the exotic vine *Passiflora foetida* at Townsville were "completely denuded" by larvae of the butterfly! The migration has also been in a northerly direction, into Cape York Peninsula and further north in the Torres Strait on Horn I. (Ham, 2020).

My own personal experience [John] of this butterfly, during a May 2016 visit to the Top End, was eventful with numbers of them visiting flowers along the roadside of the Kakadu Highway about 50km ENE of Pine Creek. They were being pushed along by the smoke of a destructive fuel reduction fire (one of too many encountered in many areas visited in the Top End!). A number of these butterflies were also seen visiting weedy flowers along the river banks within the town of Katherine.

Meanwhile Michael Braby and colleagues had been alerting the scientific community to this phenomenon, with major papers in two international journals (Braby *et al* 2014a,b). The first, published in *Insect Conservation and Diversity*, covered the spatial distribution and range expansion of *A. terpsicore* in South-east Asia and Australia, including presumed factors that led to the expansion such as climate change, deforestation (e.g. for Oil Palm and acacia monoculture), other habitat deterioration (e.g. mining), and the butterfly's ability to invade disturbed areas such as weedy wasteland and roadsides. Also, using Ecological Niche Modelling, the authors were able to make interesting predictions of the where, when and how of range expansion.

The second major paper, in *Austral Entomology*, looked at life history and focused on the biological and host plant aspects of current and potential distribution, using feeding trials to predict plant preferences. They determined that both native species (e.g. *Afrohybanthus enneaspermus*) and some exotics (e.g. *Passiflora foetida*) [ex South America] would be utilised, but horticultural species (e.g. *Passiflora edulis* and *cucurbits*) were not at risk. We are interested to see that *A. terpsicore* may have some potential as a biological control agent for the SEQ weedy Corky Passion Vine (*P. suberosa*) [ex South America] as about 15% were reared to adults on this plant. Although the feeding trial did not include it, *Passiflora subpeltata* [prob also ex South American and similar to the exotic *P. foetida*] is another weedy passion vine common in Queensland as well as parts of Asia where *A. terpsicore* is known to use it (Nidup, 2015). Hopefully, if the butterfly is of the right stock, it may find *subpeltata* to its liking here! One of the many elucidating and interesting aspects covered in Braby 2014b was mention of the "founder effect" of limited gene pool (i.e. the original invasive stock) which was/is an important determinate in which larval food plants were preferred. If *A. terpsicore* manages to establish in SEQ it will be interesting to see if the butterfly finds "Orange Spade-flower", *Afrohybanthus stellarioides* (Fig. 7), to its liking. This plant, extending further south in Qld & NSW, is very similar to *A. enneaspermus* and is a host for the local Glasswing butterfly, *Acraea andromacha* (Fabricius, 1775) (Fig. 8).

Fig. 7

A current working paper by Chowdhury *et al* (Nov 2020) in *Biodiversity Research,* section of *Diversity and Distributions* [Wiley org.] covers much the same topics and enlarges on the subject of niche conservatism in the range extension of this butterfly. In a chronological

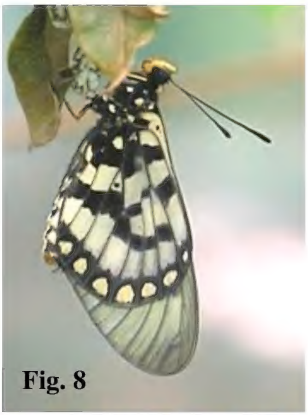


Fig. 8

listing, the authors summarise the published records of the butterfly's progress across South and South-east Asia. They then go on to analyse the geographic spread in Australia and attempt to justify their claim that there has been nil or "little" climatic niche shift involved in the butterfly's unprecedented expansion with a determination that previous predictions were still valid.

Confounding Findings:

More recently Robert Ham discovered the butterfly had also turned up unexpectedly in drier inland centres of Queensland such as near Winton and further south-west along the Diamantina River, but also extending further south-east into the channel country between Blackall and Windorah (Ham, Sept 2020). An interesting comment is worth including here as (like Franklin *et al*, 2017) it casts some doubt on the prevailing view of limitations in the butterfly's ability to expand into areas not considered suitable for its known environmental requirements. He states: *--these locations are outside the species potential Australian geographical distribution as predicted by using ecological and bioclimatic niche modelling* which had initially been raised by Braby *et al* (2014a). However, Ham also infers that the situation may be a short term one, as it likely to have been assisted by local weather factors, as the butterfly's presence may have been the *result of dispersal aided by the high rainfall event in north-west Queensland in February 2019, and subsequent flooding of rivers into the Channel Country, promoting food plant growth, and thus the potential for dispersal.* Ham also noted that all these western locations were outside the known range of *A. enneaspermus* the primary host plant of *A. terpsicore* but another related species *A. aurantiacus* does occur in suitable habitat where the butterflies were observed. It is also known that the related endemic Australian *Acraea andromacha* uses, in these drier areas, another *Afrohybanthus* species which is probably *A. aurantiacus*, and likely to be available for *A. terpsicore* as well, thus setting the stage for potential host plant competition between the two species. This potential for competition for larval food plants with Australian species has been mentioned previously; above in Field, 2017 and Braby *et al*, 2014b.

FaceBook stories:

One reason for this part of the article is to determine the authenticity of several recent Tawny Coster sightings said to have occurred in South-east Qld and northern New South Wales. We attempt to tie together the loose (even frayed!) ends of these observations.

On the 1st November 2020 Jackie Beer of the Australian Butterfly and Moth Facebook (ABM Fb) page posted an unconvincing video. To quote: *It was Redland bay, near the Sealink ferry, 3 were seen in that location all up*. (J. Beer, pers. comm., 5th January 2021). However, her sighting was backed by Simon Paul Brown who has had some experience of the butterfly in Singapore. Both are convinced it was *A. terpsicore.*

This was followed on the 4th November 2020 by Mark Korner who posted, on the Butterfly and Other Invertebrates Club Facebook (BOIC Fb) page, images of an adult taken at Glen Cairn, Gatton. This posting prompted quite a discussion, including a comment by Peter Erwin who noted: *There was a sighting near Redcliffe over the weekend*, which must remain unconfirmed. Mark Korner replied with: *just read that one was observed at Coffs Harbour* (New South Wales). This comment was further remarked upon, in particular by Chris Sanderson, who noted: *We had a Coffs Harbour record over the weekend as well*! And: *Michael Braby thinks we are looking at a vagrant event and that they won't establish this far south, but let's wait and see*.

On the 7th November 2020 Douglas Dew posted on the BOIC Fb page images of an adult taken at the Mount Basalt Environmental Reserve near Millmerran, South-east Qld. This was followed on the 16th November 2020 by Dewi Chai who posted images of adults on the ABM Fb page taken at Terania Creek (near Lismore) northern NSW.

In addition, there is an unconfirmed image of a pupa, said to be this species, taken near Bulimba Creek, Carindale, Brisbane, posted on the iNaturalist web site by katramzy63 on the 6th July 2020 (observed on the 5th). Probably determined to be a pupa of the Tawny Coster, and not the very common and similar Glasswing, based on the orange pre-emergence pupal colour in the image. Both of us live in the Redland Bay area and John is involved with the Bulimba Creek Catchment Coordinating Committee (B4C), both spend much time in our acreage gardens and nearby bush, and have yet to encounter one!

There have been no further records since November 2020 and no real indication of breeding taking place in SEQ or northern NSW. Furthermore, it is yet to be confirmed that *A. terpsicore* can acclimatise and establish itself in SEQ or any part of NSW.

Based on the Millmerran and Gatton sightings it is possible that this small influx of specimens into SEQ and northern NSW has come from the north-west rather than down the eastern seaboard. As all of these records involve single individuals or at most are very few in number, we are inclined to agree with Michael Braby that these November sightings were of vagrant individuals, possibly due to short lived local weather effects such as stronger than usual prevailing north-west winds.

Before we finish with FaceBook we need to make comment on two plants associated with this butterfly that may cause some confusion. They are Dragon Fruit (*Selenicereus undatus*) and White Alder or Morning Flower (*Turnera subulata*).

An odd report of *A. terpsicore* larvae eating Dragon Fruit was posted on the ABM Fb page by Gregorio Bortolussi on the 20th October 2018. It was accompanied by an image (Fig.9) of a larva on Dragon Fruit with the caption: *a caterpillar munching on the fleshy stem tissue*. Other images posted included an adult female *terpsicore* (Fig.10) two of pupae with one image showing two pupa hanging off the stem of a

Dragon Fruit (Fig.11) as well as an image of blackened damaged stems (Fig.12). The images were taken in the Mossman area of North Queensland.


Fig. 9


Fig. 10


Fig. 11


Fig. 12


Fig. 13

This was not convincing, as no actual chewing damage could be seen in the image with the larva and the image of old chewings possibly being made by something else, plus the fact that the related Glasswing (*Acraea andromacha*) is well known to travel some distance from its host plant to pupate. This was put to Bortolussi, who replied: *I was a bit late getting up there as my mate is the farmer who owns the crop and contacted me about the damage being done. The photo of the caterpillar was the last live one and it*

appears to be getting the chomp on. I do not discount the fact that the caterpillars may have moved in to pupate. Further investigation is warranted. This occurred in early May 2018 and has not been seen since. It is the view of the authors that *A. terpsicore* is not hosted by Dragon Fruit.

Another image posted on ABM Fb by Gregorio Bortolussi (Fig. 13) on 10th July 2020 was of a Tawny Coster larva: *feeding on a Morning Flower plant, Newell Beach N.Qld. Turnera subulata* which is a perennial herb in the family Turneraceae from tropical South America, first recorded as a host plant for *A. terpsicore* in 2016 at Thammampatti, Salem District, Tamilnadu, India, where it is used in preference to the usually "popular" *Passiflora foetida* (Gideon *et al*, 2016). The paper lists 7 other Indian host plants including *Afrohybanthus enneaspermus, Passiflora edulis, P. foetida,* and *P. subpeltata* which as expected would indicate a broad gene pool for the butterfly in that country.

In preparing this article the authors would like to thank the following: Michael Braby who provided several current articles; Roger Kitching who helped in researching historical papers; Jackie Beer for providing extra information on her sightings; Gregorio Bortolussi who also provided extra information on his sightings as well as allowing the use of several images (Figs 9 -13) and finally the online Biodiversity Heritage Library for access to historical works and illustrations.

Photos represented by Figures 7 & 8 by Peter Hendry

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ITEMS OF INTEREST

Concealer moth (*Ptyoptila matutinella*) – *Roger Standen*

When damage to the foliage on a hedge of cultivated Callistemon "Little John", a member of the Myrtaceae family, became too obvious to ignore, I investigated the cause and found many caterpillars sheltering in frass-covered, silken-glued hideouts. This was on September 2, 2020.

I had not seen larvae like this before, as they had a cut-off shaped rear end. I initially thought I had damaged the caterpillars when unpicking the tight vegetative shelter to see if there was anything inside, but it was the same on all the larvae. The larvae clearly lived in a communal shelter where each caterpillar had its own compartment, but there were several (possibly 5-6 or more) compartments tied together within a dried vegetative clump. But I had no sense of what adult might belong to them. A moth of some sort, but which one?

I collected several of the larvae and hoped to breed them to adulthood and answer my question. These larvae were variable in patterning, but generally had dark brown mottling around the face and first segment of the body and there was a broad, dark line running centrally from the head along the back of the caterpillar, fading as it went toward the tail. Dark shading also formed a line along the mid-side of the larvae.

There were various small dots in patterns along the body and each segment had a pale section running around the body that gave it a striped appearance. The rear end of the caterpillar was cut-off at an angle where the top of the body was shorter than the bottom of the body. This cut-off end appeared to be more hardened than the rest of the body and it had darker blotches around it. It also had a series of prominent hairs coming out from around the edge of it. It has been referred to me as being an exaggerated anal plate. There were other hairs protruding from all the abdominal segments. Some larvae were paler without so much darker marking.

The dates I give throughout this note are when I first noticed the changes and cannot be taken as exact times between phases of the moth's lifecycle.

The next change was the creation of individual shelters that were made by cutting off three leaves and sealing them together with silk. These shelters were all identical in shape and construction and were about 18mm long. As they looked just like the leaves on the sprigs of Callistemon I was feeding the larvae with, I did not notice them at first. The leaves gradually browned off over time as they were cut-off from the plant supply system when the shelter was made. After conversing with an experienced moth-raiser I know, I decided to look inside one of these cases and did so on September 19. The first of these shelters was probably formed by mid-September. The larvae inside the solitary shelters continued to feed as the fresh droppings continued to appear after the shelters were made (I cleaned the droppings out each day or so). At this stage, the larvae did not appear to have changed much in appearance.

Around the start of October, I noticed that one of the containers with an individual shelter had not had any droppings for a few days so I opened the shelter to check if the larva had started to pupate or had maybe died. It had pupated, so it looked like I might get an answer to my question. I estimate the time spent in the individual shelters, prior to pupating, to be two to three weeks.

I noticed the first moth to emerge on November 22, approximately seven weeks after pupation. It was an Oecophorid moth that was identified from an earlier sighting I had from the same Callistemon hedge two years earlier, as *Ptyoptila matutinella*. Over the next couple of weeks there were six more moths emerged. In parallel with these there were many, many more flying around the hedge where I first collected the caterpillars from, so even if I wasn't successful in raising the adults, I wouldn't have impacted the local population much. When I opened a shelter which an adult had emerged from, the pupal case was present within the silken covered chamber. Along with this was the final instar skin which says to me that there is only one more growth stage left after the larvae make their individual shelter.

The adult is a lovely moth with pastel shades of yellow, orange, red and brown merging across the forewings. It has a small crest of scales or hairs on the thorax that seem to be present all the time. It is found around the east coast of Australia from

about Bundaberg to Victoria, and potentially in South Australia (there is a casual record on iNaturalist for near Adelaide).

It was nice to be able to find out what moth these unusual caterpillars belonged to and add another piece of the jigsaw into the web of life in my garden.

Roger Standen
Mt Eliza. Victoria

Adult *Ptyoptila matutinella*

Adult *Ptyoptila matutinella* moth showing crest

Variable shades of colour patterning on the anal plates of larvae of *Ptyoptila matutinella*.

Multiple larvae have their individual shelters bound within a communal shelter when young.

Pupa of *Ptyoptila matutinella,* within its silken chamber inside the individual shelter of its later instar larva.

Inside the individual shelter showing the silken chamber, the pupal case and the last skin of the larva before it pupated. This pupal case was empty, the adult moth having already emerged.

Adult *Ptyoptila matutinella,* next to its individual shelter (measurements are mm).

Photos Roger Standen

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Life history notes on the Northern Silver Ochre, *Trapezites maheta* (Hewitson, 1877) Lepidoptera: Hesperiidae - *Wesley Jenkinson*

This endemic skipper is encountered sporadically in coastal and subcoastal areas from north-eastern Queensland to north-eastern New South Wales, including parts of the Great Dividing Range, Blackdown Tableland and Carnarvon Range (Braby, 2000).

The main preference is wet or dry eucalypt open forest but can also be found in dry vine forest and along margins of rainforest in northern Queensland.

In appearance this species can be very easily confused with the Southern Silver Ochre (*T. praxedes*) and the rarely encountered Ornate Ochre (*T. genevieveae*). The upperside and underside markings are very similar in these three species. The sexes are rather similar on the upperside, but females lack the large silver spots on the underside and the wing termens are more rounded in comparison to males. The underside markings are the best method to distinguish differences between these species.


Female

In comparison with *T. praxedes*, *T. maheta* are generally marginally smaller in size and the females in particular have a pale grey-brown ground colour compared to the rich purplish-brown ground colour of *praxedes* females. On the hindwing underside of males of both species are a pair of medianly placed silver spots (and one or two postmedian) which are consistently larger and more rounded in *maheta*. On the forewing underside the yellow spot above the dorsal anal vein in both sexes of *maheta* is further suffused yellow, but this is less suffused and more clearly defined in *praxedes*. Within Queensland, individual specimens can show slight variation in the size of the orange and yellow markings on the upperside. Sands *et al.* (1984), gives a more detailed description of the differences between these two species.

In comparison *T. genevieveae* males and females have a more extensive yellowish suffused streak across the dorsum of the underside of the forewing and sometimes more extensive silver spotting in the hindwing of the males. In the female hindwing underside ringed spots sometimes have silvery-white centres, only occasionally present in the other two species.

Images left to right
Male underside, *T. maheta T. praxedes T. genevieveae*. Female underside, *T. maheta T. praxedes T. genevieveae*

These three species are usually located in different habitat types with *T. maheta* and *T. praxedes* sometimes being present at the same sites in south-eastern Queensland

and northern NSW. *T. genevieveae* is known to be restricted to rainforest environment.

Adult flight is very rapid. While basking they typically settle in a 'skipper' pose with their wings open, facing towards the sun, revealing the upperside markings. Males can be observed strongly defending open glades, chasing off other males and typically returning to the same perching spot. The females also frequent the same areas looking for suitable ovipositing sites. The males generally perch within three meters of the ground on live vegetation, dead sticks, rocks or bare ground. Both sexes are readily attracted to a wide range of small native and exotic flowers. During cloudy conditions they settle on vegetation with the wings closed.

Wingspans for the pictured adult specimens are: males 29mm and females 30mm respectively.

***Trapezites maheta* (Northern Silver Ochre)**
Images left to right: male, female, male underside, female underside

Near Beaudesert in South-east Queensland during March 2018, a female was collected and laid several eggs. These eggs were collected and resultant larvae successfully raised in captivity through to adults on known host plant *Lomandra hystrix*. Larvae from eggs placed on *L. longifolia* started to die so remaining larvae were transferred back to *L. hystrix*. Eggs are usually laid under leaves of the host plant or occasionally on debris near the host plant. The females have a preference to oviposit in a cooler, protected, dappled sunlit area, below trees where soft tall grasses are growing. Andrew Atkins found *maheta* larvae on *L. hystrix* at Byfield, near Rockhampton, Central Queensland (Atkins, 1997). Other known host plants throughout its range are *L. confertifolia*, *L. filiformis*, and *L. multiflora* (Andrew Atkins, pers comm, as in Moss 2019/2020).

The collected eggs were approx.1mm wide x 1mm high, dome shaped with 19 fine longitudinal ribs. They are a cream colour when laid, with pinkish red mottled markings appearing after 2 days.

First instar larvae emerged and had consumed the eggshells by 7.00am. Shelters were formed at the base of the host plant between fresh soft leaves. Larvae were observed feeding after dusk. While resting in the shelter the head was in an upright position. Several shelters were formed during the larval stage and final instars pupated below a dead leaf resting at the base of the plant. The larvae completed five instars and attained a length of 22mm.

1st instar larva

2nd instar larva

3rd instar larva

4th instar larva

5th instar larva

5th instar head capsule

Pupa

Three adults were successfully raised under similar conditions from the same batch of eggs with the following cycle times observed.
Specimen A (Male) Egg duration 12 days, larval duration 53 days, pupal duration 10 days.
Specimen B (Male) Egg duration 12 days, larval duration 58 days, pupal duration 15 days.
Specimen C (Female) Egg duration 12 days, larval duration 67 days, pupal duration 20 days.

Adults hatched in captivity during mid-winter without any form of heating, however under natural conditions no doubt these would emerge as the spring brood.
Within the new boundary of the Scenic Rim Regional Shire south of Brisbane, I have records of adults from September and October and February, March and April. In this district emergence periods indicate there are two main generations per year.

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Insect Common Names – True or False – *Bernie Franzmann*

I saw a report recently where the American Ornithological Society, formally changed the common name of a bird.

The bird was the McCown's Longspur, (*Rhynchophanes mccownii*) named 169 years ago after the Confederate major general who discovered it. The name was changed so that it is no longer tarnished by the racist associations of McCown. The new name is Thick-billed Longspur.

This is the common name. To change the scientific name, strict rules apply, which are governed by The International Code of Zoological Nomenclature.

This got me thinking about common names, of butterflies and other invertebrates, which are "wrong".

Some butterflies have names which suggest that they are crows, awls or even aeroplanes. However, we don't really think this, do we, as we mentally apply the term "butterfly" after the name.

I am particularly amused and bemused by some of the names given to cicadas – names such as Green Grocer, Yellow Monday, Masked Devil, Whiskey Drinker, Alarm Clock Squawker and Brown Bunyip. Now, I'm not sure, but I reckon that the Bunyip is not real. Who makes up these names?

To get to the point; I have found four insect common names which are just, plain "wrong".

Pear and Cherry Slug – *Caliroa cerasi* – Tenthredinidae - Hymenoptera

Pigeon Louse – *Pseudolynchia canariensis* – Hippoboscidae - Diptera

Lucerne Flea – *Sminthurus viridis* – Sminthuridae – Collembola

Water Scorpion - *Laccotrephes tristis* – Nepidae - Hemiptera

The Pear and Cherry Slug certainly looks like a slug, but it is in fact the larva of a sawfly wasp. It is a worldwide pest, but in Australia it only occurs in the southern states. The larvae feed on the leaves of pears, cherries, plums, quinces and related species. It can be a serious pest.

Pear and Cherry Slug – Wikimedia Commons – Fir0002/Flagstaffotos

The Pigeon Louse is not a louse but a fly. Like a true louse, the adult flies feed on the blood of the host.

The Lucerne Flea is not a flea but a springtail. It is a pest of lucerne in Australia. It feeds by scraping the epidermis off the leaves.

The Water Scorpion is not a scorpion but a bug. I guess it gets its name because it can inflict a painful bite by piercing with its needle-like proboscis, and because it also has a tail, like a scorpion, which functions as a breathing tube.

Those four are the only ones I can think of. Maybe you can think of more, false common names.

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The genus *Delias* (Lepidoptera: Pieridae) a look at the Australian species from an historical perspective and an overall view of the world taxa – *Peter Hendry* continued from Issue #99

Group XIX - Belisama group: contains 14 species, with a total of 41 taxa, including subspecies. The following being the only Australian representative.
Delias aruna inferna Butler, 1871 (Fig. 13 ♂ r, v : ♀ r, v): Arthur Gardiner Butler was an English entomologist, who worked at the British Museum. Butler in his original description, which included an illustration (Fig. 14) named the species *Delias inferna* and put the type location as northern Western Australia. Butler, 1877 in an

article titled Lepidoptera from Cape York recorded "One shattered female". Butler, 1897 again repeated the type location as northern Western Australia, while noting several specimens from Cape York and Port Moresby. He also stated "Hewitson also possessed a pair which he mixed up with *D. aruna*". Fruhstorfer, 1904 is the first to refer to the taxon as *Delias aruna inferna* noting that he had a male and female from Cape York. It was Waterhouse, & Lyell, 1914 who stated "In Australia this species is confined to the extremity of Cape York and is never abundant", thus disputing the fact that the type could have come from northern Western Australia.

Fig. 13

Fig. 14

Braby, 2000 gives the distribution of *Delias aruna inferna* as, "in eastern New Guinea, the Torres Strait islands and northern mainland Queensland". The larva feed on mistletoes in the genus *Dendrophthoe* (Loranthaceae).

The nominal species ***Delias aruna aruna*** (Fig. 15 ♂ r, v) was named by Boisduval, 1832 from a specimen noted as being from New Guinea. It has been recorded from Papua New Guinea, North of the Sepik River. It has a wingspan of 78-94 mm and the larva feed on unidentified mistletoes (Parsons, 1998). There are six other subspecies involved; *D. a. rona* Rothschild, 1898 from Roon Island; ***D. a. irma*** Fruhstorfer, 1907 (Fig. 16 ♂ r,v & Fig. 17 ♀ r, v) from South Papua New Guinea,

S.E. Papua, and the islands of Yule, Fergusson and Roma, PNG; *D. a. seriata* Fruhstorfer, 1907 from Bachan, Obi, Halmahera, Kasiruta and Gebi Islands, Indonesia; *D. a. arovana* Fruhstorfer, 1913 from Rossel and Sudest Islands , PNG; *D. a. rana* Swinhoe, 1916 from Ambon Island , Indonesia and *D. a. sarera* Yagishita, 1994 from Manawi, Yapen Island, Indonesia.

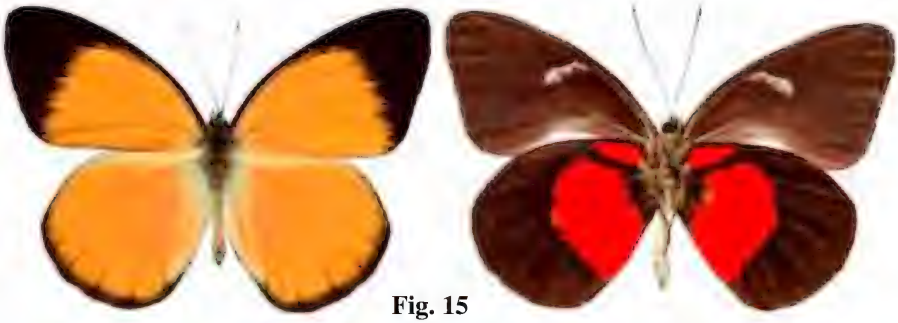

Fig. 15

Fig. 16

Fig. 17

Group XXI - Isse group: contains 8 species, with a total of 24 taxa, including subspecies. The following two taxa are the Australian representatives.

Delias ennia nigidius Miskin, 1884 (Fig. 18 ♂ r, v & Fig. 19 ♀ r, v): William Henry Miskin was an English born Australian solicitor, politician and entomologist. He described *D. e. nigidius* as *D. nigidius* from an unknown number of females collected at Rockingham Bay and the Johnstone River, north Queensland. Later, Miskin, 1889 procured and described the male. In his original description Miskin, 1884 noted, "The nearest ally of this species, as far as I am able to determine, is *D. ennia*, Wallace". Grose-Smith & Kirby, 1889 illustrated the female (Fig. 20) as *D. nigidius* and noted Miskin's reference to it being allied to *D. ennia*. Fruhstorfer, 1910 appears to be the first to place *nigidius* as a subspecies of *D. ennia*, this was followed by Waterhouse, & Lyell, 1914.

D. e. nigidius occurs in north-east Queensland from about 40k N. E. Cooktown to about 30k S E of Townville (Braby, 2000). The only known host plant is *Notothixos leiophyllus* Schumann, 1905 (Santalaceae).

Fig. 18

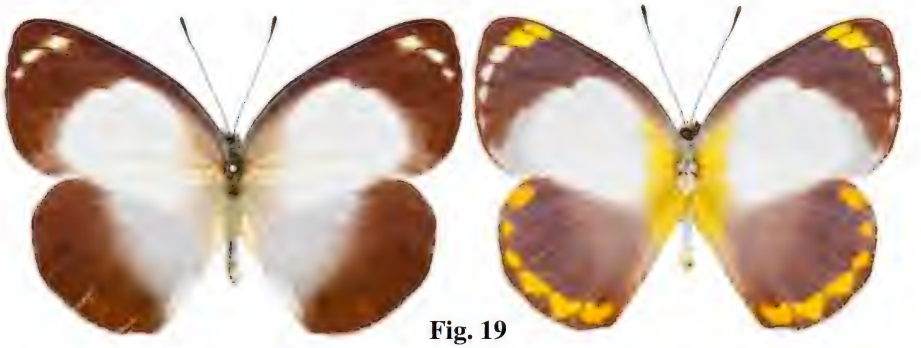

Fig. 19

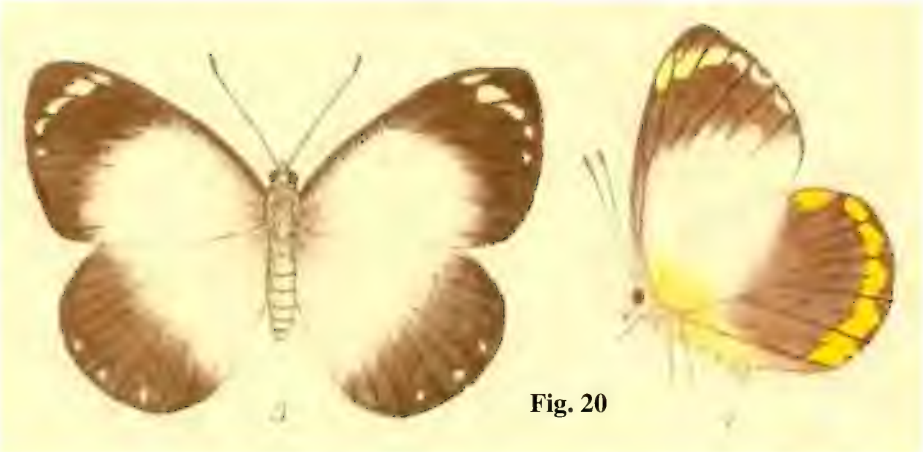

Fig. 20

Delias ennia tindalii Joicey & Talbot, 1926 (Fig. 21 ♀ r, v) was first named as *Delias ennia dorothea* by Tindale, 1923, the location was given as Queensland, Coen River (W. D. Dodd) This reference to W. D. Dodd's Coen River site was discussed by Moulds, 1990 concluding, it referred to the goldfields in the McIlwraith Range. The name *Delias ennia dorothea* proved to be invalid as the name *D. dorothea* had been used by Mitis, 1893 (now a synonym of *D. ennia ennia* (Wallace, 1867). Tindale, 1927 proposed the replacement name *D. e. Theodora* not realizing that Joicey & Talbot, 1926 had already replaced the name with *D .e. tindalii.*

Fig. 21

D. e. tindalii has a restricted distribution on the east coast of Cape York from Iron Range to Coen (Braby, 2000).

The nominal species ***Delias ennia ennia*** has a wingspan of 45-55 mm, it was described and illustrated (Fig. 22) in 1867 by the naturalist Alfred Russel Wallace, who co-authored the theory of evolution through natural selection with Charles Darwin. The type specimen from Waigeu (Waigeo Island, Indonesia) was named under the genus *Thyca*. There are 8 other subspecies involved*; D .e. jobiana*,

Oberthur 1894 from Jobi (Yapen) Island, Papua; *D. e. iere*, Grose-Smith 1900 from Noenfoor Island, (Geelvink Bay), Papua; *D. e. xelianthe*, Grose-Smith 1900 from Central Highland, PNG; *D. e. mysolensis*, Rothschild 1915 from Mysool Island, Papua; *D. e. multicolor*, Joicey & Noakes 1915 from Biak Island, Indonesian; *D. e. oetakwensis*, Rothschild 1915 from Central Mtns, Snow Mtns, Papua; *D. e. saturata*, Rothschild 1915 from Goodenough Island, PNG and *D. e. limbata*, Rothschild 1915 from the islands of Sudest & Misima, PNG.

Fig. 22

Group XXII - Hyparete group: contains 21 species, with a total of 74 taxa, including subspecies. The following seven taxa are the Australian representatives.

Delias mysis mysis (Fabricius, 1775) (Fig. 23 ♀ r, v) is the last of the three *Delias* species collected by Joseph Banks in 1770 and named by Johan Christian Fabricius. Named under the genus *Papilio*, the type location is believed to be Cooktown. Its generic placement follows that of *D. n. nysa*. It was also illustrated by Donovan, 1805 (Fig. 24 ♂) under *Papilio mysis*. As with *nysa*, *mysis* was first placed in *Delias* by Kirby 1871 but again Kirby, 1879 placed it in *Pieris.*

D. m. mysis, with a wingspan of 60-70 mm, occurs from about Cooktown to Yeppoon, rarely south of Mackay (Sankowsky, 2020). The larva are hosted by mistletoes in the family Loranthaceae.

Tindale, 1923, published a black and white image (Fig. 25) of a gynandromorphy of *D. m. mysis* from Cairns, taken by Mr. A. M. Lea.

Delias mysis waterhousei Talbot, 1937 was named by the English entomologist George Talbot who produced the first major work on *Delias* in his six volumed A

Monograph of the Pierine Genus Delias. As the name implies he named it after our own G. A. Waterhouse from specimens from Cape York giving the habitat as Cape York to Claudie River. Braby, 2000 did not recognise waterhousei noting "specimens from Cape York Peninsula (assigned to D. m. waterhousei Talbot, 1928-37), appear to show little consistent difference from those further south" and assigned it to D. m. mysis. Braby, 2004 continued not to recognize waterhousei but Braby, 2016 treated waterhousei as D. m. waterhousei and noted it in the checklist provided as stat. rev *(status revised).*

Fig. 23

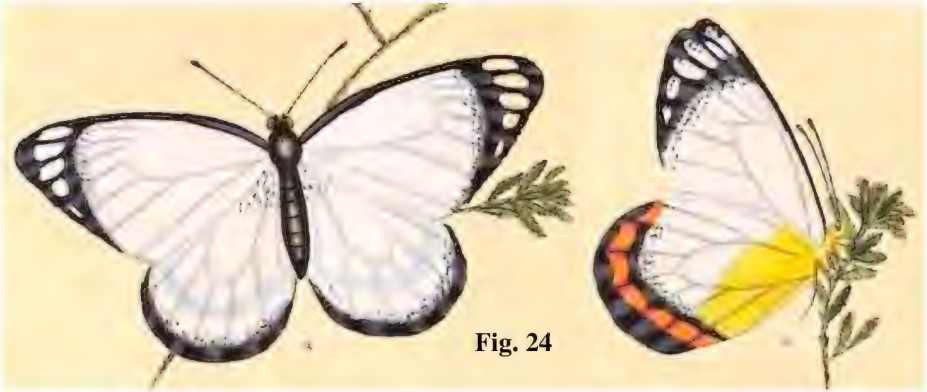

Fig. 24

There are two other extralimital subspecies involved; *D. m. aruensis*, Mitis 1893 from Aru and *D. m. nemea*, Fruhstorfer 1910 from the Merauke District of S.W. PNG.

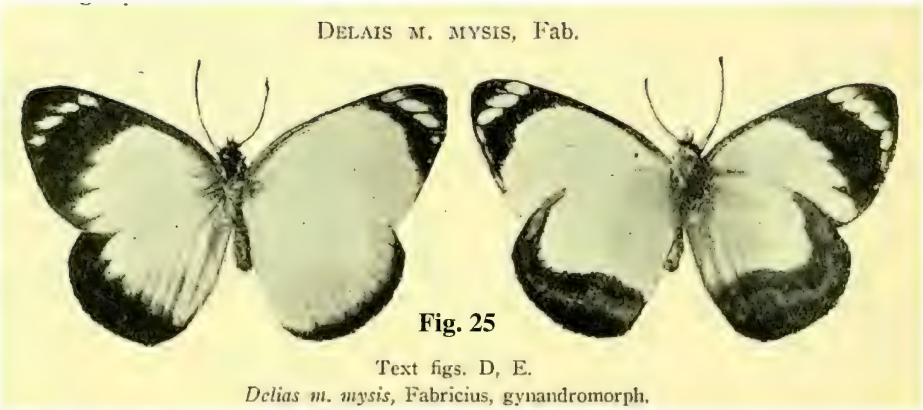

Fig. 25

Text figs. D, E.
Delias m. mysis, Fabricius, gynandromorph.

Delias argenthona argenthona (Fabricius, 1793) (Fig. 26 ♂ r, v & Fig. 27 ♀ r, v) named under the genus *Papilio* from a specimen in the Drury collection, of which the location was not given. Latreille & Godart, 1819 placed *argenthona* in the genus *Pieris*, this was followed by Boisduval, 1836; Wallace, 1867 placed it in the genus *Thyca*, this was followed by Butler, 1869. Kirby, 1871 was the first to place *argenthona* in the genus *Delias*, though he later referred it to the genus *Pieris*, Kirby, 1879. Mites, 1893 again referred it to the genus *Delias* where it stands today.

Fig. 26

Fig. 27

Fig. 28

Fruhstorfer, 1910, illustrated (Fig. 28) a new form, *Seminigra*, of which Waterhouse and Lyell, 1914 noted, "This form occurs only during the winter months". Today it is referred to as the winter form or dark form (Fig. 29 ♂ r, v & Fig. 30 ♀ r, v).

D. a. argenthona, with a wingspan of 66-82 mm, occurs from Cape York through the eastern half of Queensland to southern New South Wales. The larva feed on several genera of mistletoes in the family Loranthaceae and *Santalum lanceolatum* Brown, 1810 (Santalaceae).

Fig. 29

Fig. 30

Delias argenthona fragalactea (Butler, 1869b) was named by the English entomologist, Arthur Gardiner Butler under the genus *Thyca* as *Thyca fragalactea*. Butler, 1871 referred to the taxon as *Delias fragalactea* and also illustrated it (Fig. 31). Butler, 1897 noted "It is possible that this may eventually be linked to *D. argenthona*". Fruhstorfer, 1910 comparing *fragalactea* to *argenthona* noted that it "may be regarded as a seasonal form, perhaps even only a casual aberration". He illustrated (Fig. 32) the upperside of *argenthona* and the underside (Fig. 33) of *fragalactea*. Waterhouse and Lyell, 1914, referred to *fragalactea* as a subspecies of *Delias argenthona* noting "This is not a seasonal form, but the north western race of

argenthona", giving its location as King Sound, W.A., Darwin and Melville Is.

Fig. 31

Waterhouse, 1932 treats *fragalactea* as a subspecies of *argenthona* as does Talbot, 1928–1937(Vol 6) but somewhat confusingly Talbot also lists it as a variety of *argenthona*. Common and Watehouse, 1981 also treated *fragalactea* as a subspecies of *Delias argenthona*, then Braby, 2000 argued that *fragalactea* is based on a seasonal variation and states "recognition of *D. a. fragalactea* as a separate subspecies cannot be supported". It is not recognized in Baby, 2004 then in Braby, 2010 (in the checklist provided) it is noted as *Delias argenthona fragalactea* (Butler, 1869) *stat. rev*. Braby, 2016 treats *D. a. fragalactea* as a separate subspecies with a distribution map showing its occurrence to be from the eastern part of north Western Australia, through the north of the Northern Territory and into north western Queensland.

There is one other subspecies involved *D. a. insularis*, Rothschild 1925 from the southern area of Papua, PNG and Aru Isl. (Indonesia).

Fig. 32 **Fig. 33**

Delias lara lara (Boisduval, 1836) (Fig. 34 ♂ r, v New Guinea specimens): With the full name of Jean Baptiste Alphonse Déchauffour de Boisduval, Boisduval was a French Lepidopterist. He named *lara* from two male specimens from New Guinea, sent to him by M. de Haan who used the name *lara*. Boisduval placed it under the genus *Pieris*. He described it within a subsequent description of *mysis*, noting the differences from the "New Holland" species. Vollenhoven, 1865 referred to the species as "*P. mysis*, F. var. *lara* de Haan". Wallace, 1867 placed *P.mysis* var *lara* Voll, probably misinterpreting the original author, as a synonym of *cruentata* Butler, 1865 under the genus *Thyca*. Kirby, 1871 placed *lara* in *Delias* as a variety of *D. mysis* with *cruentata* a synonym of *lara*. Mites, 1893 under the genus *Delias* treated *lara* as a species in its own right with *cruentata* and *intermedia* Miter, 1893 as varieties thereof. Staudinger, 1894 while noting that de Haan did not name *lara*, on examining specimens sent to him by Kirby believed *cruentata* and *intermedia* to be aberrations of *lara*. Butler, 1897 treated the taxon as *Delias Lara*. Fruhstorfer, 1910 treated *lara* as well as *cruentata* and *intermedia* as subspecies of *mysis*; he also includes, *aruensis*, *maga* and the Australian *aestiva* as subspecies of *mysis* and raises three new subspecies *D. m. oisyme, D. m. nemea* and of note *D. m. onca*. Waterhouse and Lyell, 1914 make no mention of *lara* as at this stage it is not recognized from Australia. Rothschild, 1915

list the taxon as *Delias mysis lara* while reporting on a male and female collected in New Guinea in 1912-1913. Talbot, 1937 also refers to it as *D. m. lara*, giving the distribution as, "Waigeu and Dutch New Guinea (except South-East area)". Common and Waterhouse, 1972 & 1981 treat *D. m. onca* as being "Within the Australian limits", noting a pair from Moa Island. Braby, 2000 recognizes *D. m. onca* with no reference to *lara*, this status continues in Braby, 2004 and Braby, 2010. Meanwhile, Davenport & Mastrigt, 2009 in a revision of *Delias mysis* treat *lara* as a species in its own right and nominate *cruentata* and of note *onca* (as well as two other not aforementioned taxa) as synonyms of *lara* and include four taxa, *hideyoae*, *goodenovii*, *rosselliana* and *maga* as subspecies of *lara*. Braby, 2012 takes note of Davenport & Mastrigt, 2009 and states" specimens from within Australian limits previously listed under the species group name *onca* are now known as *D. lara lara"*. Braby 2016 no longer refers to *D. m. onca* and replaces it with *Delias lara*.

Fig. 34

Delias lara, wingspan ♂ 56, ♀60 mm, in Australia it is "known from the Torres Strait islands, QLD", (Braby, 2016). As mentioned above there are four subspecies involved; *D. l. hideyoae*, Nakano 1995 from Yapen (also known as "Japen" or "Jobi") Island; *D. l. goodenovii*, Rothschild 1915 from Goodenough island; *D. l. rosselliana*, Rothschild 1915 from Rossell islands and *D. l. maga*, Grose-Smith 1897 from Sudest Island.

Delias aestiva aestiva Butler, 1897 (Fig, 35 ♀, painting by author): there are a few things to note from Butler's original description, firstly the name was printed as "*Delias æstiva*", as can been seen from this example, looking at the start of the specific name, it is hard to determine which diphthong is in play, ae or oe; I will follow this later. Secondly, Butler placed a question mark after his species new, "sp. n. ?" and lead into the description with the following, "Possibly only a dry-season form of the preceding" (*mysis*), though it is now duly accepted as a taxon in its own right. He gave the location as Port Darwin and Port Essington (Cobourg Peninsula, N.T.). Fruhstorfer, 1910 as first reviser, accepted the diphthong as ae and placed *aestiva* as a subspecies of *mysis*, however Waterhouse and Lyell, 1914 use the name *D. mysis oestiva*, taking the diphthong to be oe. This is followed by Talbot, 1937 and

Waterhouse, 1932. Common & Waterhouse, 1972 &1981 refer to the taxon as *Delias mysis aestiva*, this is followed by Braby, 2000; Braby, 2004, and Davenport & Mastrigt, 2009. Braby, 2012 in a comprehensive study of the life history of *aestiva* revises its status to a species in its own right and continued to treat it as such in Braby, 2016.

Fig. 35

D. aestiva, wingspan ♂54 mm, ♀55 mm, the distribution was given by Braby, 2012 in a considered statement in which he noted "that *D. aestiva* is endemic to the Northern Territory where it is distributed predominantly in the northern coastal areas of the Top End". He dismissed Warham, 1957 record of *D. mysis* from the western Kimberley, which had been attributed to *D .aestiva*, as a misidentification of *D. argenthona fragalactea*. Baby, 2012 writes of the Gulf of Carpentaria as being a natural divide between *D. aestiva* and *D. mysis* but notes an "anomalous record" of *D. mysis* "from Groote Eylandt, in the Gulf of Carpentaria, January 1926"

The larva feed on the non-mistletoe, mangrove species *Excoecaria ovalis* Endlicher, 1833 (Euphorbiaceae) a contributing factor to it being separated from *D. mysis*, a mistletoe feeder from the rainforest. This also brings up other misidentifications such as that of the American, Douglas Marsden who collected in North Queensland in 1966 and reported collecting both *Delias mysis mysis* and *Delias mysis aestiva* from rainforest near Kuranda along the Barron River. We can now put his *D. m. aestiva* down to a variation of *D. m. mysis*. Braby, 2012, had a comparative success rate raring *aestiva* larva in captivity on *Excoecaria ovalis* and several species of mistletoe in the family Loranthaceae, 85.7% to 80.6% and lesser success on *Exocarpos latifolius* (Santalaceae) 40.0%.

To be continued

BOOK REVIEWS

Inviting Nature to Dinner, by Helen Schwencke & Dick Copeman
Earthling Enterprises, Brisbane, iv + 110 pp. – Reviewed by *Roger Kitching*

Over the years there has been a steady trickle of books that try to instruct their readers on how to make their gardens more biodiversity-friendly. Perhaps the best known of these is *Attracting Butterflies to your Garden* (2011) by the late, great Densey Clyne. Another work with a very similar title (2007) but aimed at South Australian users was produced by a group of authors lead by Lindsay Hunt. In 2020, the Gold Coast Council published the booklet *Our Nature: Butterflies* (2020) (for which I wrote the text). Now Helen Schwencke and Dick Copeman

have produced a book devoted to biodiversity gardening in south-east Queensland/north-eastern New South Wales. This is the 'preview edition' (more of this idea shortly) of *Inviting Nature to Dinner* under review here. In addition to these specialist works most modern butterfly books (such as the Sankowsky volume reviewed by Peter Hendry in *Metamorphosis* #97) discuss, in passing, butterfly 'gardening' with recommendations on plant management for attracting butterflies.

Helen and Dick's book is, in some ways a follow-up to Frank Jordan and Helen Schwencke's earlier work, *Creating more Butterflies* in (2005) (reviewed by Graham McDonald in *BOIC Newsletter* #37, 2005) but, unlike that book, focusses explicitly on creating biodiverse gardens.

Generally speaking, books of this kind present food-plant information on a selection of insect species with information on where to obtain and how to grow such plants (or domestic substitutes for them). In the case of the Gold Coast Guide, information is presented in both ways: first a selection of butterfly accounts, followed by a parallel series of plant accounts. The excellent book by Helen and Dick takes a different, more general, ecological approach while still including some of the necessary specifics.

Underpinning this different approach, the work encompasses all insects not just butterflies (although the 'case-histories' section of the book does focus on the food-plants of local butterflies – and one day-flying moth). The authors do this as part of recommending that setting up a biodiversity-friendly garden should be an exercise in ecosystem-building. So, in describing the 'how' of this process they dwell extensively on the 'why'. There is far more ecology in this work than in any of the others I have mentioned – and by this, I mean the formal science of ecology not its New Age bowdlerisation to mean anything 'green'. As well as describing briefly issues related to insect population and community dynamics the authors also insert text bubbles which lead the reader on to more detailed scientific websites where they can learn the science behind the garden management and explore particular case-histories in greater detail. I have not followed up all of these recommended sites but, as an academic ecologist, I both applaud and admire this approach. Indeed, transforming a plot of land into a biodiversity-rich garden could well represent the practical side of a formal course in terrestrial ecology – although it might take longer than the usual time period for such courses. The only downside to this approach from the point of view of the book is that it inevitably involves the use of specialized terminology which might put off the absolute beginner – but there is nothing that a good dictionary or inventive 'googling' will not clarify – all part of self-education.

In addition to the substantive text the authors have put together three useful appendices on site analysis, food-plants and local nurseries, which will save the garden developer a lot of work.

Finally, then, what is this business of a 'preview edition'? The authors invite widespread comment on this version and intend, they claim, to produce the genuine 'first edition' (their terms) within a year. This is a good idea although for later

bibliographers this will always be the 'first edition' – whatever the authors claim. There are indeed quite a number of typos and misprints (which I will inform the authors about, privately) but other than fixing up those, what would I suggest? Well, first, the detailed accounts of both plants and insects do focus on the butterflies and expanding that to other groups of insects would be a good idea. The section on 'Wildlife Friendly Gardening' (pp. 30-44) does cover a much wider field including sections on trees, dead wood and litter, and 'wetland' creation. Other invertebrate-specific topics could well be included here: setting up bamboo-segment housing for hole-nesting insects, maintaining an ant-lion patch, encouraging fungi as insect resources, and so on. Much of the wisdom described here is stimulated by Helen's restoration of her small, very urban West End garden (supported by some impressive 'before and after' photos). Others have different challenges – water availability, recalcitrant soil, no source patches of remnant bushland etc. – or how to cope with the variety of peri-urban situations such as on my 8 acre bush block. Salt-impacted coastal patches also present a different set of challenges and opportunities. The problem is, of course, that an inclusive book would get larger and larger and would end up as a substantial tome and still omit vital detail in the opinions of some users. It will be interesting to see to what compromise the authors come.

I suppose one day we might have such a multi-authored authoritative tome on invertebrate management to which all others could refer but, meanwhile the 'Preview Edition' of Helen and Dick's book is a fascinating and useful read and I recommend it highly.

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Ed.: Contact info@earthling.com.au to enquire about ordering the book

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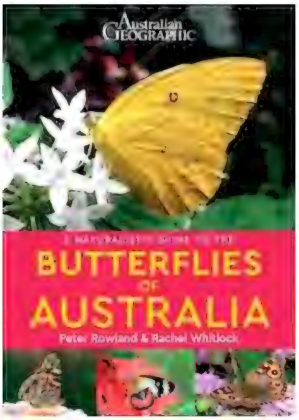
A Naturalist's Guide to the Butterflies of Australia
Peter Rowland & Rachel Whitlock – Reviewed by *Bernie Franzmann*



This book is part of a series about Australian wildlife. It is promoted as "An easy-to-use identification guide to 301 butterflies covering the species most commonly seen in Australia." There are 420+ species in Australia, and as it seems this book is for the novice observer, I think it's a good idea to include only the common ones (but more about this soon).

At first glance the book looks good as a beginner's field guide. It is small and sturdy, making it easy to take with you.

I started to peruse the book and got as far as the first illustration, and noticed a mistake. The illustration is of two larvae, stated to be of the Cabbage White Butterfly. I am best described as a slightly-advanced novice when it comes to butterflies, but I do know pest insects. One of these is a larva of *Pieris brassicae*; a pest overseas but not in Australia – not a good beginning (but more about this soon).

For each species, the text describes identifying features, including the wingspan, and the distribution, habitat, and habits. The common and scientific names are listed. There is also a checklist of species, with their status in each state.

I was planning to show the book to a butterfly "expert" to check for any obvious mistakes in identification. However, before I got around to it, I saw a review of the book by Michael Braby (2020). He lists 32 illustrated species which are misidentified! He also points out that a few species are not established on the Australian mainland; so much for covering only "the species most commonly seen in Australia".

What to decide; recommend or not?

I decided to test the book. I caught a Plumbago Blue and asked my 11-year-old granddaughter to identify it. She did so in about three minutes. It may have helped that the book virtually fell open at the Plumbago Blue page. I also caught a specimen which was showing interest in laying her eggs on my citrus trees. I knew it was one of the citrus swallowtails – but which one? The book helped me to correctly identify it. So, the book can be useful.

I can't recommend it with all those mistakes, but most of them involve applying the wrong scientific name. This may not be a significant issue for the beginner, as they would be interested only in the common name; which itself can be a vexed issue. By using the book in the field, they could then come home and check further, on the internet.

I still can't decide. Given what I have told you, you can make up your own mind.

Reference

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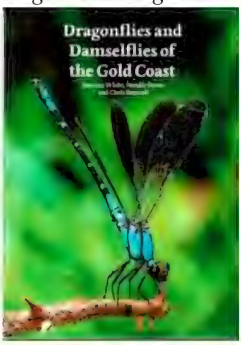
Dragonflies and damselflies of the Gold Coast **by Damian White, Narelle Power and Chris Burwell.** Privately published (ddwfauna Publishing, Ipswich). ISBN 978-0-646-82900-5. 1102 pp. Paperback – 2020 – AU$15.00 – Review by *Roger Kitching*



The dragonflies and damselflies (the Odonata) of Australia continue to receive an increasing amount of attention, perhaps second only to the butterflies in volume. For any group of insects, I always think that when *local* guides start appearing then that group has 'made it' in terms of popularity. So it is with the odonates and *Dragonflies and damselflies of the Gold Coast* joins this distinguished company. Produced by three local entomologists, this fine slim volume is undoubtedly the frontrunner in terms of production qualities (and price – this is a *cheap* book – get one while you can).

The authors confirm the existence of 85 species of odonates from within the City of the Gold Coast. In addition, they note a further 21 species that have occurred recently nearby. This suite of over a hundred species make up just about a third of the 333 species currently recorded in Australia. In spite of the extraordinary riches in our tropical North (not described in this work) this local total confirms, yet again, what an extraordinary bioregion we live in. The super-riches of the Macleay-McPherson overlap zone, where southern and northern faunas co-exist, is highlighted yet again.

The work under review describes the adults of the Gold Coast species. Photographs of mature males and females of all of the 85 confirmed species are presented often with additional photographs of newly emerged ('teneral') adults which can be of quite different appearance to their more mature selves. For the 21 'maybes' single pictures are included. In this respect the work is a substantial advance on, say, the late Rick Nattrass' (still very useful) *Dragonflies of south-east Queensland* (2006). Photos in the Gold Coast book, mostly the work of Damian White and partner, Narelle Power, are of very high quality and, in principle, can be used to identify field encounters by simple comparison. There is, however, no doubt that a similar high-quality photograph of the 'unknown' would be required or the insect in hand.

This brings me to tricky question of 'what is a book like this for?' First, consider its undoubted virtues. This is the first handbook for the Gold Coast region. As such it is complete, comprehensive and a fine introduction for expert and beginner alike. Second, it is finely illustrated and can simply be browsed with pleasure by the armchair naturalist. Last it provides a bite-sized introduction to the Order Odonata in

Australia. The book includes introductory sections on life-histories, ecology, and anatomy, with passing comments on taxonomy, in addition to the species accounts which present examples of most of the families to be found in Australia.

As a tool for identification, I think using this book would be hard work although familiarity and experience would no doubt soon soften the blow. The problem is that for many within-genera distinctions very careful comparison of abdominal and/or thoracic patterning is required. This is best done (in my view) when these patterns are illustrated side by side with arrows indicating points of contrast. The current standard Australian Handbook (Theischinger & Hawking 2006) goes part way along this path, abstracting the critical bits of anatomy as line drawings adjacent to photographs of the whole insects. The recent volumes on New Guinea odonates (Kalkman & Orr 2013, Orr & Kalkman 2015) are models of the approach I advocate here, based on Bert Orr's insightful paintings and drawings with each plate showing related species with key points of identification clearly visible. The eagerly awaited 2nd Edition of *The Complete Field Guides to Dragonflies of Australia* takes on board Orr as an additional co-author, so perhaps…..

Finally, I note that, like Nattrass' 2006 book, the present volume is privately published. This not currently a problem and the authors/publishers have achieved a very high standard of presentation. Privately published books, however, do have a habit of vanishing from the literary scene sooner than one would wish and often experience distribution issues. There is a vacant niche for a local institutional (or commercial) publisher to adopt these works both as a public service and, in this case at least, a commercial proposition.

All in all, then, this is a fine book that will grace any naturalist's library.

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Ed.: the book is available from narelle.power@ddwfauna.com.au for $15 plus P/H

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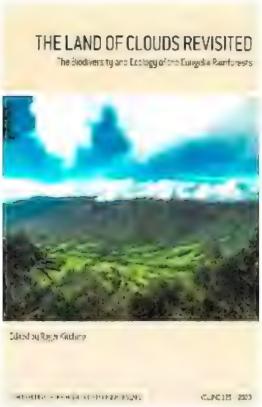
The Land of Clouds Revisited: The Biodiversity and Ecology of the Eungella Rainforest Proceedings of the Royal Society of Queensland Special Issue 125
Edited by Prof. Roger Kitching – Review by *Gary Wilson*



In my youth in the middle of the last century, a comment that one was heading to tropical north Queensland meant one of three things; one was headed for Eungella, to The Whitsundays, or to Palm Cove north of Cairns. Each of them was a long way away, and there was the daunting stretch of the Bruce Highway north of Rockhampton to Mackay to traverse before one arrived in the 'tropical' north. Eungella, on the Clarke Range 60 kilometres west of Mackay, offered the first substantial area of rain forest, a respite from the heat and humidity of the coast, and the opportunity to see platypus in Broken River. I well remember making the trip north from Rockhampton in the 1970's to do just that.

Times, roads and road transport, technology, and the cost of air travel have all changed since then, and it appears as though other destinations have assumed ascendency. I now rarely hear of someone mentioning any of these locations as destinations *per se*. Despite the early (1936) declaration of the first section of what was to become the 59,865 hectares Eungella National Park, one of the largest in Queensland, Eungella does not seem to garner the attention warranted or enjoyed by other locations in the North. This is despite the superb views down the Pioneer Valley, the expanse of middle and higher altitude rain forest, being the best place to see a platypus, the presence of the endemic Eungella Honeyeater *Bolemoreus heindwoodi* and several endemic subspecies of birds, the discovery of the now (presumed) extinct Northern Gastric brooding frog *Rheobactrachus vitellinus* and the presence of several other endemic species of frogs. For years, the most attention Eungella received was from the reporting of the National Hang-wing Glider Championships that were conducted from the ramp at The Lodge. The only notable popular exposé of the virtues of the area for several decades was John Winter and Keith McDonald's 1986 *Eungella: Land of the Cloud* article in *Australian Natural History Magazine.* It was at this time I returned to Eungella for another look and to join John in leading an Elder Hostel/College for Seniors Course there. I remember having a lecture in an upper room of The Lodge interrupted by shouts from the chef as he flew past the window as a passenger on a motorized trike.

In a 2010 address to Government Agencies Environmental Officers at a meeting at the Gold Coast, Professor Roger Kitching described the biodiversity survey work being done at Lamington National Park in the South and Mount Lewis in the Wet Tropics in the North and then observed that detailed, elevation-partitioned surveys of the Eungella massif, more or less halfway between these two locations, and 'known to be of great biological interest' had not been carried out. Discussion with officers of

the Mackay Regional Council ensued and sub-sequentially led to the multi-disciplinary 2012-2014 Eungella Biodiversity Survey (EBS). A summary report of the EBS, edited by Roger has been published as Volume 125 and a Special Edition of the *Proceedings of the Royal Society of Queensland*, and is the subject of this Review

Special Edition 125 is one of the latest in a series, dating from 1976, of Special Issues of the *Proceedings of the Royal Society of Queensland* that deal with issues of importance to Queensland and Queenslanders. On receiving this Edition for review I was struck by the image on the front of the volume. It shows a view across the Pioneer Valley and the mosaic of cane fields, to the face of the Clarke Range and a layer of low-lying cloud across the plateau with blue skies and higher altitude clouds above – the scene perfectly reflects the title of the Special Edition and is well chosen.

The volume contains eleven papers on a variety of topics by an eclectic suite of authors. The contents do not claim to fully report on all the findings of the EBS, some specialist papers have already appeared and others will follow, but present an overview and some outcomes of it. The names, associations and interest of the contributors are presented in the last pages of the volume and I found them of considerable interest. I was pleased to see the contributors came from a range of disciplines and institutions, from as far away as Southern China, and that five were associated with Queensland Parks & Wildlife Service.

Of contributions by the latter, I found three of particular interest. The first was the Foreword by Ross Hynes, current President of the Royal Society of Queensland. Ross wrote of the debate about the credibility of the science associated with the condition of the Great Barrier Reef, and growing and widespread criticism of the veracity of science in general. There is a growing and concerning, and to my mind counter-intuitive, social dialogue about science afoot at the moment, and it is a problem for all of us. At this time, with the ever-more evident impacts of climate change, and the mixed response to and theories about COVID-19, I have in the past month received three journals where the editors, normally quiet, have felt the need to comment on the threats posed by aspects of the situation. The second contribution of interest was Peter Ogilvie's paper *The development of national parks in the Eungella region*. It was interesting and informative and told of an emerging philosophy about national parks. As a former park ranger whom has worked in two Australian states and Yosemite and the Grand Canyon in the US, and more recently visited Yellowstone and the Grand Teton NPs, I am aware of recent stressors on parks and reserves systems and Peter's recent comment on them in respect to Queensland in the Summer 2020 Edition of *Wildlife Australia*. The third contribution of particular interest is the last in the volume and is Hines *et al.* detailing of the extent and severity of the fires and the potential impact of them on natural values, particularly in the mesic forest, of the area. Of this I will speak more later in this review.

The Eungella Plateau lies between the Burdekin-Lynd Gap to the north and the St Lawrence Gap to the south, and the ecosystems and flora and fauna there include elements from the bioregions in both directions, and isolates of post-glacial remnant

rainforest. The EBS established four 20 x 20 m plots, each >400 m apart, at 200 m in six elevation bands, namely at 200, 400, 600, 800, 1000 and 1200 m asl. This design was predicated on the idea that each 200 m interval corresponds to an average temperature drop of 1.2ºC and can be used as a surrogate for changes in climate, and to allow comparison with data collected elsewhere using the same protocol. Ecological parameters at each site were recorded and the botanists censused all stems >5 cm diameter of all species at all sites. Teams of experts in various taxonomic groups collected data in 2012, 2013 and 2014.

In this volume those experts have reported on their findings, and it is intriguing reading. I can report that Mahoney *et al.* did not relocate the Northern Gastric brooding frog but have not entirely given up hope of doing so. However, in additional surveys they did locate additional populations of the Eungella dayfrog *Taudactylus eungellensis*, albeit at low densities. Other contributions describe surveys and findings of land snails, dragonflies and damselflies, ants, the Pyraloidea moth fauna, and the avifauna. There are new species to be described, new distributions recorded and the grounds set for further inquiry. The data show more species associated with the south than those associated with the north occur on the Eungella Plateau, and that many species reach their northern-most or southern-most occurrence there. However, the data also show the plateau is of great biodiversity importance and that much remains to be done and many questions to be answered. The results of the EBS and subsequent studies, the high levels of biodiversity and species endemism, coupled with a spectacular geology and scenic values, add weight to the suggestion that the Eungella National Park and associated areas should be nominated for World Heritage listing to join those to the North and South.

Eungella came to public attention again in 2018 due the devastating fires of that November, which burned deep into that forest and gave portent of the effects of changing climate, and the resulting considerable coverage in the popular and scientific press. Whilst the fires had considerable impact on the flora and fauna, the extent of which is still being determined, they occurred subsequent to the EBS and as a result we have a great deal more baseline data for the affected areas than would have otherwise been the case. I am pleased the Special Edition contains a paper by Hines *et al.* detailing the extent (110,000 hectares) and severity of the fires and the potential impact of them on natural values, particularly in the mesic forest, of the area. The presence of the established geo-located survey sites established during the EBS, CORVEG sites completed by Queensland Herbarium staff during previous vegetation mapping, and 20 minute/2 Hectare sites more recently established by Birdlife Mackay, should all assist in monitoring the effects of the fires and recovery of the flora and fauna from them.

A summary volume such as this causes one to read across fields outside one's normal interest and I found myself pondering many points and frequently reaching for a volume in my library to read further on them. I consider this a desirable outcome and urge those whom have not read this Special Issue to procure a copy and peruse it; at a

price of $30.00 plus postage, it is a useful addition to any library on natural history. The volume extends to 157 pages, the text is well printed, the tables and graphics are easily readable, and the colour reproductions are very good. Then do as I have and plan another trip to Eungella and have a closer look.

References

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LETTER

A Well-earned Century – a letter by *Lois Hughes*

In celebrating the publishing of 100 issues of our Newsletter/*Metamorphosis Australia* Magazine, it seemed like an appropriate occasion to pay tribute to our dedicated and talented magazine "put togetherer" – Daphne Bowden. Magazine Editor is a more fitting job description, but Daphne considered it a bit too grand for what she does. I disagree, as would others who know the workload and skill involved in its production.

I remember well the early days of the black and white Newsletter; Daphne and I having volunteered to do something we (especially me) both really knew very little about, but we were keen to learn and help BOIC succeed. Daphne typed up and compiled all the articles she received and had them printed in booklet form. I illustrated the articles with insects that I was unfamiliar with, to accompany the articles written by scientists and knowledgeable people. To say that we were intimidated by the task is to put it mildly! Thankfully, there were people willing to correct our mistakes before they went to print. Constructive criticism was always welcomed, and our knowledge grew.

However, I did draw a Dung Beetle rolling a ball of dung just in case we did make a mistake, the accompanying caption reading "I'm in the poo!". An apology and correction then followed!

When the pressure got too great, I'd go off and paint pansies or roses, anything but butterflies or insects with unpronounceable names. Daphne did cross-stitch and raised tadpoles! We did have some fun times, though, amidst all the chaos of trying to make things scientifically correct. Those early newsletters are a far cry from what our

colour magazine has now become. It is a magazine that is well respected and appreciated by scientists and lay people alike, both for its quality of content and excellence of presentation, and thanks to Daphne's skill, patience and perseverance.

Have you noticed that the stamps on some of the enveloped magazines usually depict insects, such a nice touch don't you think?

A word I really like is "synergy". In essence, the combining of individual components produces an effect greater than each component alone. It's not just what you do, it's how you do it and your vision, not only seeing what it is, but seeing what it can become.

Metamorphosis Australia magazines are the result of the combination of each contributing club member's research, lived experiences, questionings and historical records and the desire to share these things with fellow members for the enrichment, increased knowledge and enjoyment of us all.

What makes our magazine great is Daphne's vision. She takes all the submitted articles, photos, artwork etc. and weaves them into a beautiful body of work and she does it excellently - that's synergy. She envisions how good it will look when everything comes together. Her motivation, or the desired end result, is to make each contributor feel proud of their work, and to present to not only club members, but to the general public, the aims of our organisation and to encourage active participation.

So, Daphne, sincere thanks and appreciation for your years of selfless dedication, from myself personally, from all past and present committee members and all BOIC members whose lives you have enriched. You can be justifiably proud of your achievements; your work will always be a monument to the power of one over sometimes seeming insurmountable odds and a treasured and valuable reference resource for years to come.

By the grace of God may you long continue.

With love. Lois

Ed.: Thank you, Lois

EXCURSION REPORT

Butterfly and Invertebrates Walk

Brisbane Botanical Gardens, Mount Coot-tha, 5 December 2020 - *Liz Wilson* and *Jon Hartas*

It was a very hot Sunday when our group of 16 met at the waterlily ponds in front of the library. Dragonflies, small native bees and Eastern Sedge frogs congregating on the reeds and waterlilies of the ponds got the photographers in our group warming up their shutter fingers.

Once all had arrived, we began our walk up through the gardens to the Australian Plants trail.

As permission had been obtained from the Curator of the Gardens to "swipe, catch, ID and release", we were able to study some specimens more closely utilising the nets and collection jars brought along by Bernie and Ross.

First capture/release of the day, a Zebra Blue was caught approaching the Bunya Pine forest.

An unexpected group of 5 beautiful Magnificent spider, *Ordgarius magnificus*, eggs sacs were observed in the Eucalypt Woodland area.

Photo Peter Storer

Butterflies became more numerous around the lake and into the gully behind due to the presence of a diversity of flowering plants in the sub-tropical, tropical rainforest, brigalow and Melaleuca wetland plantings and various bodies of water located in this area.

Most identifications were done by the experienced observers in our group whilst the butterflies were on the wing. A few were carried out on capture/release specimens, such as the Orange Palm Dart. A favourite of the group was the Bordered Rustic, an example of which was captured for observation.

Photo Liz Wilson

Photo Rip Curtis

Photo Liz Wilson

We headed back down towards the Australian Rainforest section near the front of the Gardens. An unknown species from the suborder of *Auchenorrhyncha* was spotted on the side of a tree.

A slight increase in tempo was required – morning tea was locked in at the café.

However, we were waylaid at the *Cycas revoluta* grove at the Gardens entrance, where Ross pointed out an active Cycad Blue female laying eggs, tiny dots requiring close observation. Discussions were had regarding the natural history of the species and its geographical movement south from Rockhampton over time. Why does it seem to prefer exotic *C. revoluta*?

We had reached the end of another enjoyable BOIC excursion. Well-deserved refreshments were had at the café.

On the day we also saw examples of Pale Triangle, Wanderer, Orchard Swallowtail, Plumbago Blue, Small Grass Yellow, Blue Triangle, Common Albatross, Evening Brown, Blue tiger, Yellow Migrant, Orange Palm Dart, Bright Cornelia, Common Crow and Caper Gull butterflies.

Several wasps, spiders, dragonflies, and other insects were observed also.

Thanks to David Exton for suggesting the excursion and Dawn for sending out invitations, COVID registration details, compiling observation list, booking the café and keeping everyone on time.

SEED BANK

There are small quantities of host plant seeds available. If you require any of them, please send a stamped, self-addressed envelope to Daphne Bowden, 24 Rickston Street, Manly West Qld. 4179 and list the seeds you require.

Alternanthera denticulata
Aristolochia acuminata (Tagala)
Aristolochia macroura
Asclepias curassavica
Asystasia gangetica
Brachychiton populneus
Crotalaria grandiflora
Hygrophila angustifolia
Melicope elleryana
Senna acclinis
Senna gaudichaudii
Senna retusa var. *glabra*
Sesbania cannabina

DISCLAIMER

The magazine seeks to be as scientifically accurate as possible but the views, opinions, and observations expressed are those of the authors. The magazine is a platform for people, both amateur and professional, to express their views and observations about invertebrates. They are not necessarily those of the BOIC. The manuscripts are submitted for comment to entomologists or people working in the area of the topic being discussed. If inaccuracies have inadvertently occurred and are brought to our attention, we will seek to correct them in future editions. The Editor reserves the right to refuse to print any matter which is unsuitable, inappropriate or objectionable and to make nomenclature changes as appropriate.

ACKNOWLEDGEMENTS

Producing this magazine is done with the efforts of:

- Those members who have sent in letters and articles
- Peter Hendry who provided the cover photo collage
- Daphne Bowden who works on layout, production, and distribution
- Peter Hendry, John Moss and Ross Kendall for scientific referencing and proof-reading of various articles in this issue of the magazine

ARE YOU A MEMBER?

Please check your mailing label for the date your membership is due for renewal. If your membership is due, please renew as soon as possible. **Annual membership fees are $30.00 for individuals, schools, and organizations**. If you wish to pay electronically, the following information will assist you: BSB: **484-799**, Account No: **001227191**, Account name: **BOIC**, Bank: **Suncorp**, Reference: your membership number and surname.

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